

**REMARKS**

In the Office Action, claims 1-37 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Kotani (U.S. Patent No. 5,105,362) and Kleinknecht (U.S. Patent No. 4,188,123). Applicant respectfully traverses the Examiner's rejections.

As the Examiner well knows, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Health-care Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior

art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Applying the above legal standards, it is respectfully submitted that the Examiner's Section 103 rejection is improper. As an initial matter, it is believed that the Examiner's primary reference, Kotani, is so deficient with respect to many of the claim limitations that it is hard to understand how Kotani could be viewed as a primary reference to the inventions defined in the present application. As understood by the undersigned, Kotani is directed to a system for managing production of semiconductor devices. Col. 1, ll. 11-15. Kotani discloses that a typical production line is comprised of a plurality of production apparatus 11a and a plurality of inspection apparatus 11b. The production apparatus 11a perform various processes on successive semiconductor wafers, while the inspection apparatus 11b inspect partially finished products which have been prepared by the production apparatus. Col. 1, ll. 19-33. Kotani further notes that in a conventional production line, the production apparatus and the inspection apparatus are allowed to operate independently regardless of errors and malfunctions in the production apparatus and the inspection apparatus. Col. 1, ll. 61-66..

To alleviate such processes, Kotani discloses a system comprised of a central processing unit 12 which performs real-time, on-line control of the production apparatus and the inspection apparatus. Col. 3, ll. 18-20. The processing managing system disclosed in Kotani is comprised of three blocks. The first block 10 is a processing managing area which manages the various processes performed by the production apparatus and the various inspections performed by the inspection apparatus. Col. 3, ll. 40-44. The second block 20 is a data accumulation area which

is connected to the process managing means 10. The data accumulation means 20 accumulates and stores various data which have been acquired over a long time such as the results of processes or inspections conducted in the production line, data obtained through various tests conducted by an external evaluation system and the like. Col. 3, l. 57 – Col. 4, l. 5. The data accumulation means 20 provides for reference to the accumulated data as well as for statistical computation using such data. The third block 20 of the system disclosed in Kotani is a simulation area. The simulation means 30 simulates the operation or characteristics of the semiconductor devices produced by the semiconductor production line on the basis of the data stored in the data accumulation means 20. Col. 4, ll. 12-16. The simulation means 30 further determines optimum conditions for subsequent processes to be performed and delivers the data for those optimum conditions to the process managing means 10. Col. 4, ll. 16-19. The simulation means 30 can perform process simulations, device simulations and circuit simulations. Col. 4, ll. 19-31.

As thus understood, it is respectfully submitted that the Kotani reference is deficient in many respects. First, the Examiner states that Kotani discloses generating a trace profile corresponding to an implant profile of the implant regions, citing Col. 3, l. 57 – Col. 4, l. 5. The undersigned has reviewed the cited passage of Kotani and fails to find any support whatsoever for the Examiner's statement. If the Examiner believes Kotani supports such disclosure, an exact quotation of the language from Kotani would be appreciated in a subsequent Office Action. Moreover, the Examiner states that, “[i]t is the position of the Office that the data accumulation area for determination of statistical results of the processes of Kotani is equivalent to the implant profile, and the trace profile as claimed by the applicant.” Office Action at page 2. Apparently, the Examiner concedes that Kotani does not disclose such an implant profile as indicated by the use of the phrase “equivalent to the implant profile” set forth in the Office Action. Simply put,

Kotani fails to teach some very fundamental aspects of the limitations of the claimed invention. With respect to claim 1, Kotani does not show any of the steps set forth in claim 1 other than perhaps the first one of providing a semiconducting substrate. Kotani certainly does not show all of the claimed limitations set forth in the third paragraph of claim 1. It is respectfully submitted that the Examiner's reading of Kotani, *i.e.*, to find the implant profile and trace profile, is nothing more than an improper use of hindsight using Applicant's disclosure as a roadmap. Accordingly, it is believed that the obviousness rejection based upon Kotani is legally improper.

The patent to Kleinknecht is equally deficient with respect to the claimed invention. Most importantly, the reference to Kleinknecht cannot overcome the glaring deficiencies in the primary reference Kotani. In the Office Action at page 2-3, the Examiner states it would have been obvious to someone skilled in the art to combine the device of Kotani with the illumination of a plurality of implant regions of Kleinknecht for the purpose of providing a means to measure the film thickness of a semiconducting substrate. It is unclear how the last clause regarding measuring the film thickness of a semiconducting substrate applies to independent claim 1. Perhaps this latter statement by the Examiner was merely an inadvertent oversight.

In any event, the combination of Kotani and Kleinknecht fails to render Applicant's invention obvious.

The argument is even more compelling with respect to dependent claim 2 which further limits claim 1 by requiring the step of generating an additional trace profile for an additional plurality of implant regions formed in the substrate when the additional implant regions have an implant profile different from the first implant regions. At no point does any of the art of record show the methodology set forth in dependent claim 2. Thus, any obviousness combination based upon such an art of record would be illegally improper.

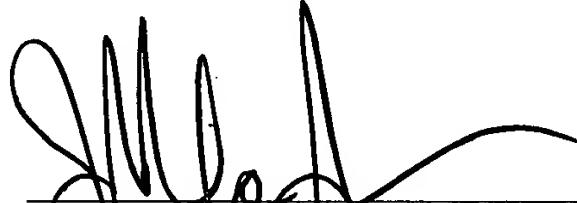
Independent claim 8 is likewise believed to be even further distinguished from the cited art. Among other things, independent claim 8 involves the step of comparing a generated profile trace of an implant region to a target profile trace and, based upon a deviation between the generated trace and the target trace, modifying at least one parameter of an ion implant process used to form implant regions on subsequently processed substrates. The prior art identified by the Examiner is completely silent with respect to this aspect of the claimed invention. It is respectfully submitted that any attempt to argue that the prior art of record discloses the invention defined by independent claim 8 is based upon an improper use of hindsight using Applicant's disclosure as a roadmap.

Independent claims 16, 24 and 31 are believed to be allowable for similar reasons to that set forth above with respect to independent claim 8.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

WILLIAMS, MORGAN & AMERSON  
CUSTOMER NO. 23720



J. Mike Amerson  
Reg. No. 35,426  
10333 Richmond, Suite 1100  
Houston, Texas 77042  
(713) 934-4055  
(713) 934-7011 (facsimile)

Date: January 28, 2004

ATTORNEY FOR APPLICANT